



Jongen Werkzeugtechnik



PowerMill
A17-18-19



Products from



Willich



North-Rhine
Westphalia



Germany



Europe

for



Europe

and the

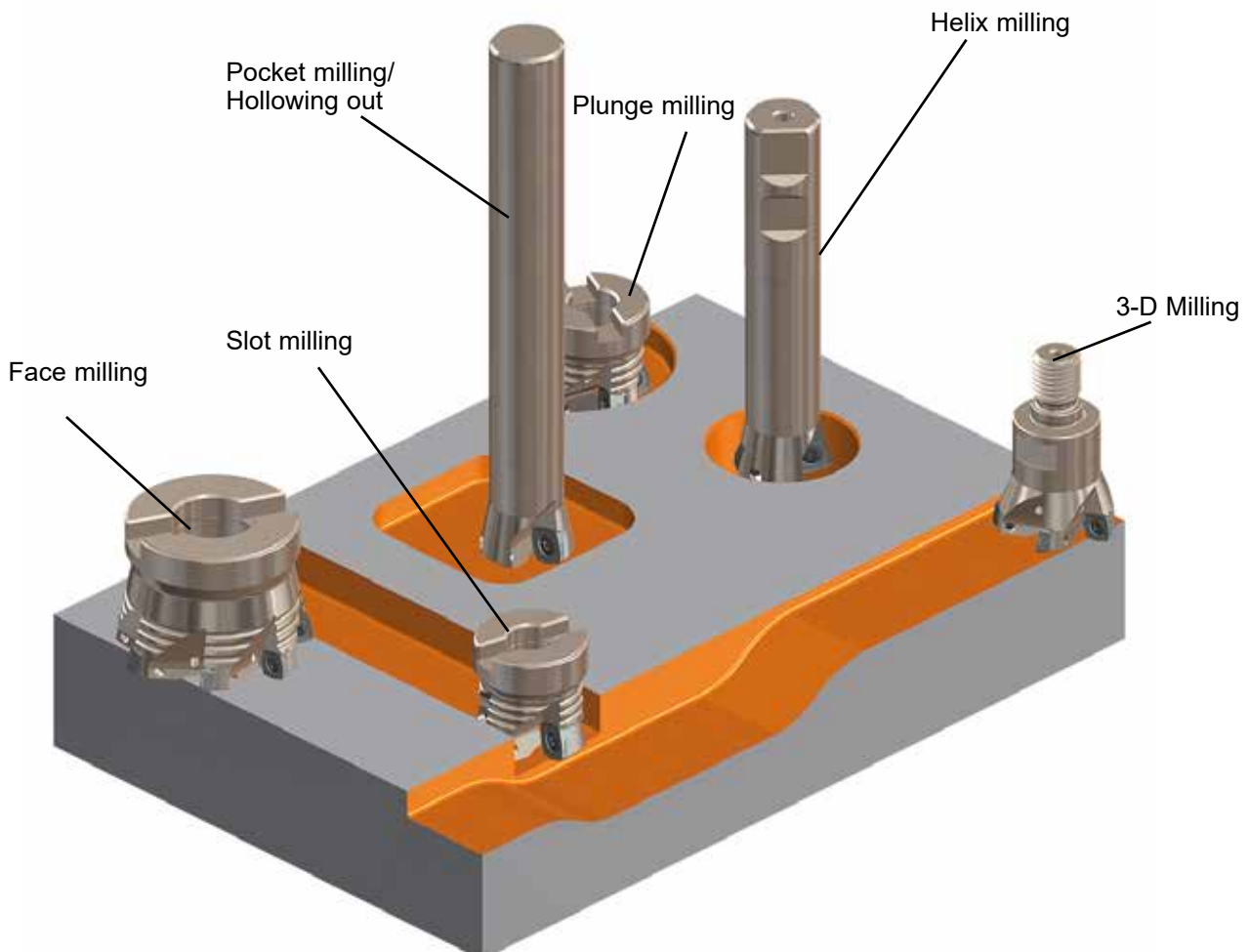


FEATURES:

- ☞ Very high feed rates with axial depth of cut -ap-, depending on insert type, of up to 3,0 mm
- ☞ Positive cutting geometry thanks to chip breaker on the insert
- ☞ 4 cutting edges per insert
- ☞ Almost no radial cutting forces
- ☞ Different cutting edge geometries for rough and light metal cutting.
Version M = Rough machining
Version H = Average machining
Version S = Light machining
- ☞ The different no. of teeth allow an optimal choice of the appropriate milling tool

ADVANTAGES:

- ☞ High chip removal rates for lowest working time
- ☞ Suitable for almost all materials
- ☞ Applicable for great overhangs
- ☞ Close-contoured roughing possible
- ☞ Extreme stable inserts
- ☞ Very hard tools
- ☞ Different tool types ($\varnothing 20 - \varnothing 125$) allow flexible application areas: shell milling cutters, screw-in cutters, shank milling cutters with coupling made to DIN 1835-B and cylindrical shank milling cutters for big extension lengths.
- ☞ Shell milling cutters with coupling made to DIN 8030 with internal coolant passages
- ☞ Screw-in cutters with internal coolant passages
- ☞ Shank milling cutters with coupling made to DIN 1835-B, with internal coolant passages
- ☞ Cylindrical shank milling cutters similar to DIN 1835-A, without internal coolant passage



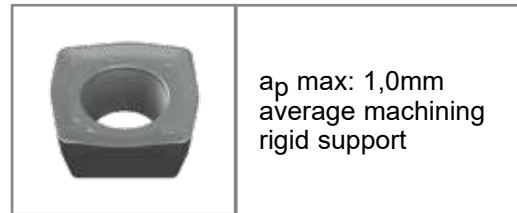
THE INSERT

☞ Precision sintered, with 4 effective cutting edges with positive chip breaker,

JMA17-09MR08



JMA17-09HR08



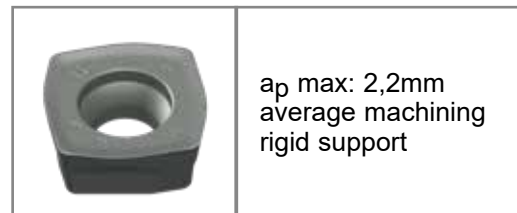
JMA17-09SR08



JMA18-12MR10



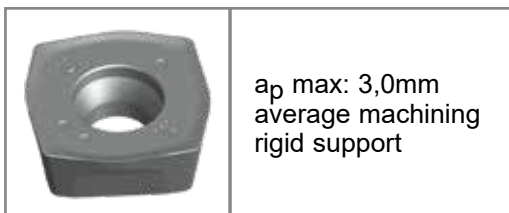
JMA18-12HR10



JMA18-12SR10



JMA19-19HR12



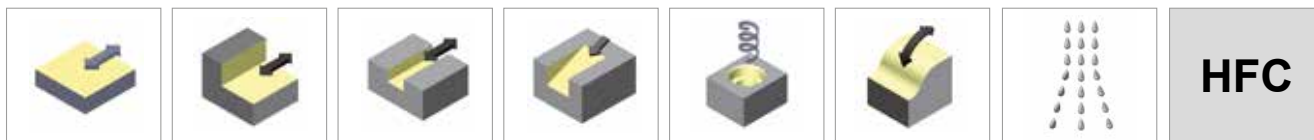
JMA19-19SR12



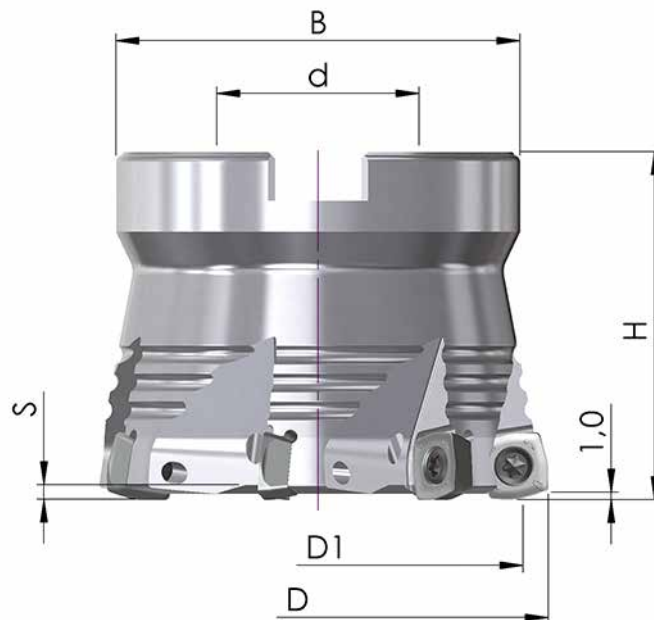
Following carbide qualities are offered:

- HC45** **Code 41, DIN-ISO 513 Classification P30-P35, M25-M30, K20-K30**
 Very tough fine grain quality with a thick HIPIMS-coating for middle - high cutting speeds and high feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing of almost all steels such as structural steel, tool steel, heat-treatable steel as well as unalloyed, low alloyed and high alloyed steel, and also cast-qualities such as grey cast iron, globular graphite cast iron etc.
- HC42** **Code 57, DIN-ISO 513 Classification P30-P35, M25-M30, K20-K30**
 Very tough fine grain quality with a very thick HIPIMS-coating for middle to high cutting speeds with high feed rates. This quality is suitable for dry milling and can also be adopted with cooling. The main area of application is the roughing and finishing of heat-treatable steel and tool steel, but also stainless steel/high grade steel, cast iron and high-temperature resistant alloys can be machined limitedly.
- HT45** **Code 31, DIN-ISO 513 Classification P30-P35, M25-M30, K20-K30**
 Very tough fine grain carbide with an AlTiN- Nanocomposit-coating for middle to high cutting speeds with high feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing of almost all steels and cast iron qualities such as: structural steel, tool steel, heattreatable steel as well as unalloyed steel, low alloyed steel, high alloyed steel and also grey cast iron, globular graphite cast iron etc.
- HT32** **Code 33, DIN-ISO 513 Classification P20-P30, M25-M30, S20-S30**
 Hard wearing and tough finest grain carbide with an AlTiN- Nanocomposit-coating for medium to high cutting speeds and middle feed rates. This quality is equally applicable for dry as well as wet milling. It is especially suited for processing stainless steel, tool steel as well as high alloyed steel.
- HC30** **Code 52, DIN-ISO 513 Classification P20-P30, M25-M30, S20-S30**
 Hard wearing and tough finest grain carbide with HIPIMS-coating for middle cutting speeds and middle feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing high grade steel as well as high alloyed materials.
- XC35** **Code 46, DIN-ISO 513 Classification P20-P30, M20-M30, S15-S25**
 Wear resistant and tough finest grain hard metal quality with HIPIMS-coating. On the basis of the experience gained wet machining is preferably to be adopted with this quality; however the dry processing is also possible. XC35 has been especially developed for processing stainless steel, duplex steel and high-alloyed materials, but also for titanium etc.
- HT20** **Code 32, DIN-ISO 513 Classification K15-K20, H15-H20**
 Very hard wearing fine grain carbide with an AlTiN- Nanocomposit-coating for middle – high cutting speeds with high feed rates. This quality is suitable for dry milling and can also be adopted with cooling. Application areas are roughing and finishing of cast iron materials, e.g. grey-, tempered-, vermicular-, graphite- and globular graphite cast iron.

TYPE A17 - TECHNICAL DATA



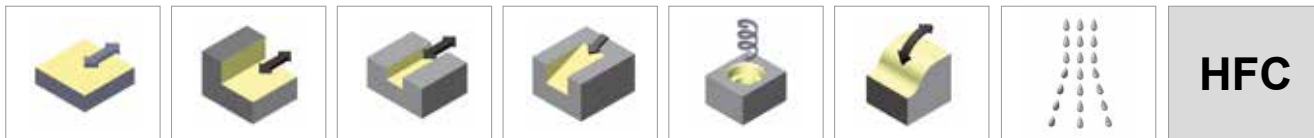
SHELL TYPE MILL



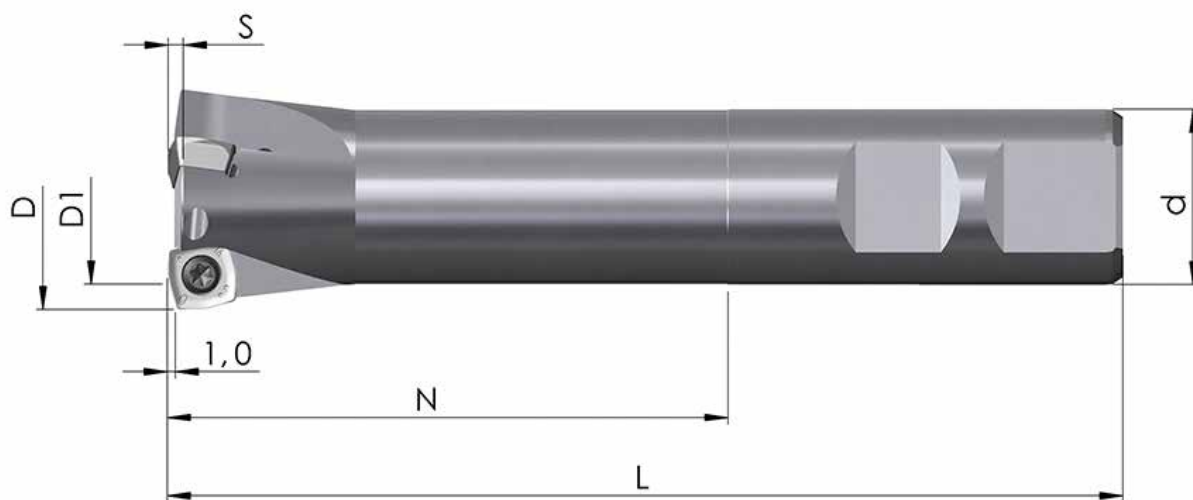
Order-Nr.	D	D ₁	H	d H ⁶	B	S	Z	MS
00PP-040-09-4	40	30,0	40	16	38	2,25	4	MS-8x25-912
00PP-042-09-4	42	32,0	40	16	38	2,25	4	MS-8x25-912
00PP-050-09-5	50	40,0	40	22	46	2,25	5	MS-10x25-912
00PP-052-09-5	52	42,0	40	22	46	2,25	5	MS-10x25-912
00PP-063-09-5	63	53,0	50	27	58	2,25	5	MS-12x35-912
00PP-066-09-5	66	56,0	50	27	58	2,25	5	MS-12x35-912
Close pitch:								
00PP-042-09-5	42	32,0	40	16	38	2,25	5	MS-8x25-912
00PP-050-09-6	50	40,0	40	22	46	2,25	6	MS-10x25-912
00PP-052-09-6	52	42,0	40	22	46	2,25	6	MS-10x25-912
00PP-063-09-7	63	53,0	50	27	58	2,25	7	MS-12x35-912
00PP-066-09-7	66	56,0	50	27	58	2,25	7	MS-12x35-912

MS= Central screw

TYPE A17 - TECHNICAL DATA

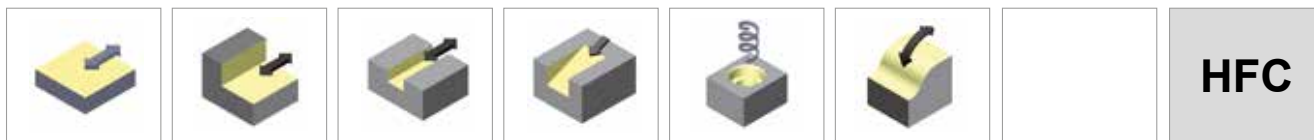


SHANK TYPE MILL DIN 1835-B (WELDON)

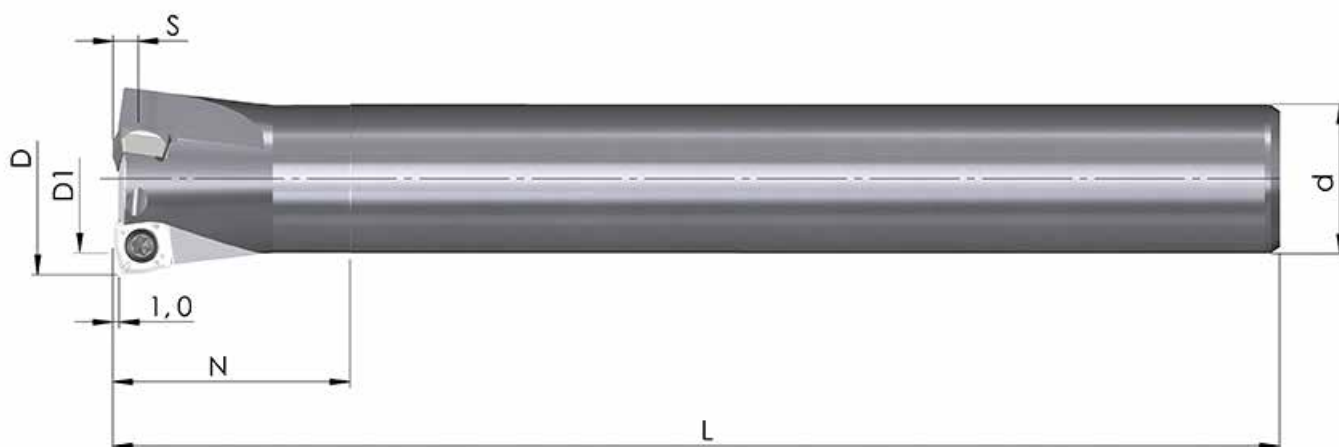


Order-Nr.	D	D ₁	N	d _{h6}	L	S	Z
00PP-20-09-2-80	20	10,0	80	20	130	2,25	2
00PP-22-09-2-80	22	12,0	80	20	130	2,25	2
00PP-22-09-2-125	22	12,0	125	20	175	2,25	2
00PP-25-09-3-80	25	15,0	80	25	136	2,25	3
00PP-25-09-3-125	25	15,0	125	25	181	2,25	3
00PP-32-09-3-80	32	22,0	80	25	136	2,25	3
00PP-32-09-3-125	32	22,0	125	25	181	2,25	3
00PP-35-09-3-80	35	25,0	80	25	136	2,25	3
00PP-35-09-3-125	35	25,0	125	25	181	2,25	3

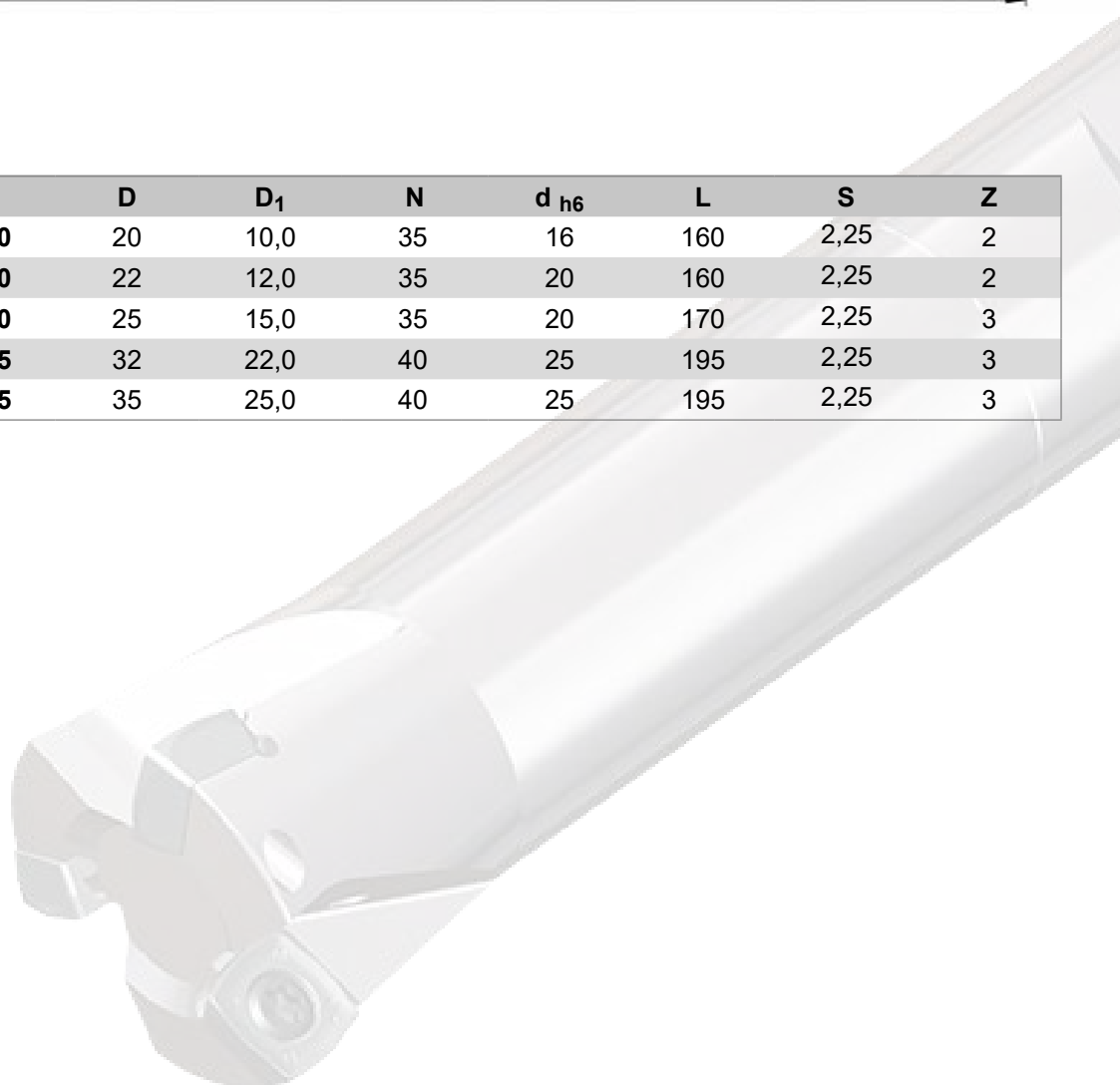
TYPE A17 - TECHNICAL DATA



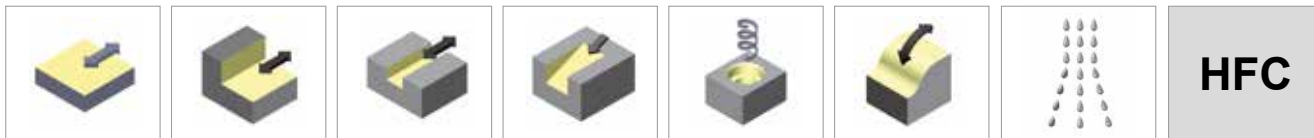
SHANK TYPE MILL DIN 1835-A



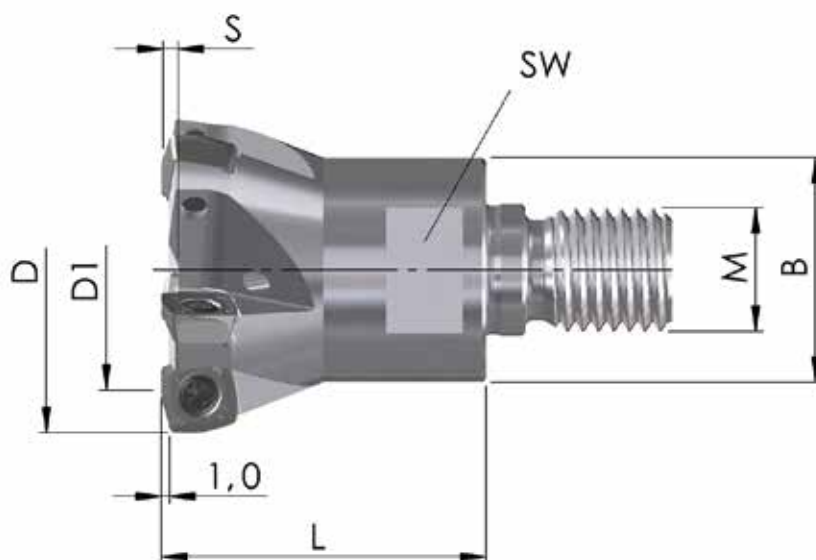
Order-Nr.	D	D ₁	N	d _{h6}	L	S	Z
00PP-20-16-09-2-160	20	10,0	35	16	160	2,25	2
00PP-22-20-09-2-160	22	12,0	35	20	160	2,25	2
00PP-25-20-09-3-170	25	15,0	35	20	170	2,25	3
00PP-32-25-09-3-195	32	22,0	40	25	195	2,25	3
00PP-35-25-09-3-195	35	25,0	40	25	195	2,25	3



TYPE A17 - TECHNICAL DATA
















SCREW-IN CUTTERS



Order-Nr.	D	D ₁	L	M	B	SW	S	Z
ESF-20-M10-09-2	20	10,0	32	M10	18	16	2,25	2
ESF-22-M10-09-2	22	12,0	32	M10	18	16	2,25	2
ESF-25-M12-09-2	25	15,0	32	M12	21	18	2,25	2
ESF-32-M16-09-3	32	22,0	42	M16	29	24	2,25	3
ESF-35-M16-09-3	35	25,0	42	M16	29	24	2,25	3
ESF-42-M16-09-4	42	32,0	42	M16	29	24	2,25	4
Close pitch:								
ESF-25-M12-09-3	25	15,0	32	M12	21	18	2,25	3
ESF-32-M16-09-4	32	22,0	42	M16	29	24	2,25	4
ESF-35-M16-09-4	35	25,0	42	M16	29	24	2,25	4
ESF-42-M16-09-5	42	32,0	42	M16	29	24	2,25	5

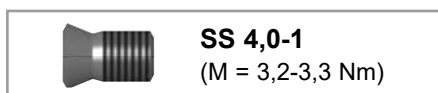
INSERTS

		HC45 (code 41)	HC42 (code 57)	HT45 (code 31)	HT32 (code 33)	HC30 (code 52)	XC35 (code 46)	HT20 (code 32)
	JMA17-09MR08- IK 9,6x4,0 R0,8							
								
Order-No.		A17A-LG41	A17A-KF57			A17A-JE52		A17A-MH32
f_z [mm]		0,90 (0,60-1,50)	0,90 (0,60-1,50)			0,90 (0,60-1,50)		0,90 (0,60-1,50)
	JMA17-09HR08- IK 9,6x4,0 R0,8			A17A-GC31	A17A-FB33		A17A-HD46	A17A-EA32
Order-No.								
f_z [mm]				0,80 (0,50-1,50)	0,80 (0,50-1,50)		0,80 (0,50-1,50)	0,80 (0,50-1,50)
	JMA17-09SR08- IK 9,6x4,0 R0,8			A17A-PL31	A17A-NJ33			A17A-OK32
Order-No.								
f_z [mm]				0,70 (0,50-1,50)	0,70 (0,50-1,50)			0,70 (0,50-1,50)

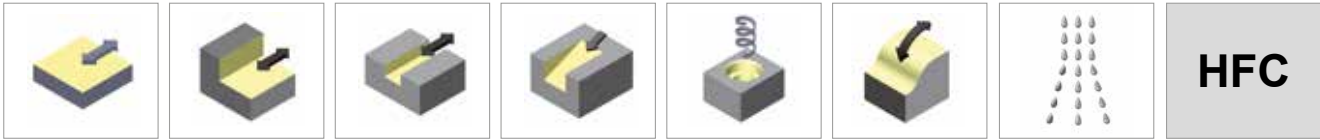
Key to symbols see catalogue page XV-39

V_c [m/min]	steel	stainless	cast iron	non-ferrous metals	highly heat-resistant	tempered
HC45	250 (200 - 350)	240 (140 - 300)	240 (130 - 280)			
HT45	250 (200 - 350)	240 (140 - 300)	240 (130 - 280)			
HT32	250 (200 - 350)	240 (140 - 300)			60 (40 - 200)	
HC30	160 (120 - 220)	200 (100 - 300)			60 (40 - 200)	
XC35	120 (60 - 160)	100 (60 - 180)			80 (60 - 120)	
HT20			260 (180 - 350)			80 (40 - 120)

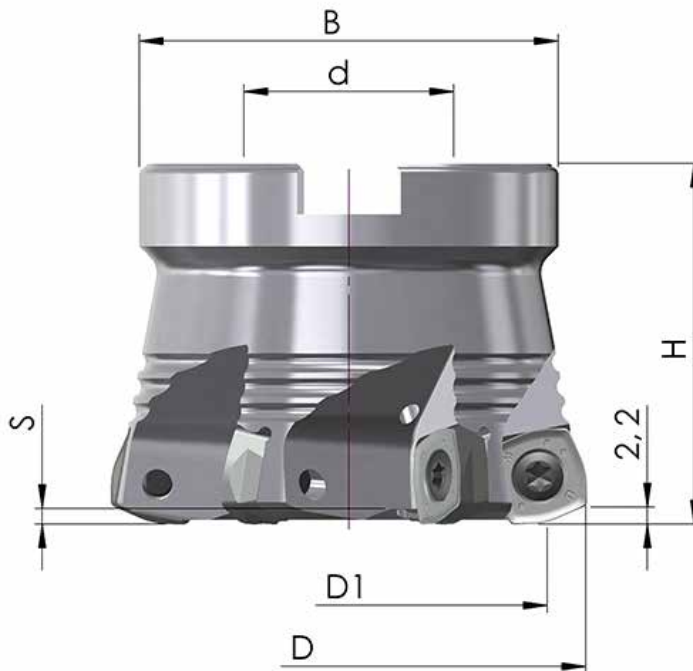
SPARE PARTS



TYPE A18 - TECHNICAL DATA



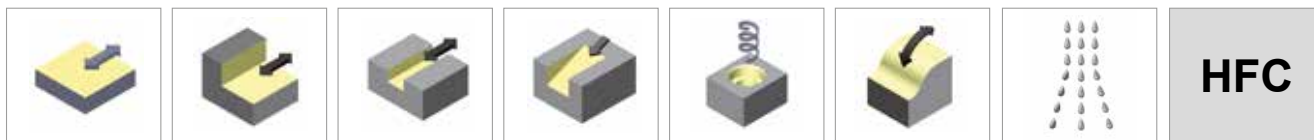
SHELL TYPE MILL



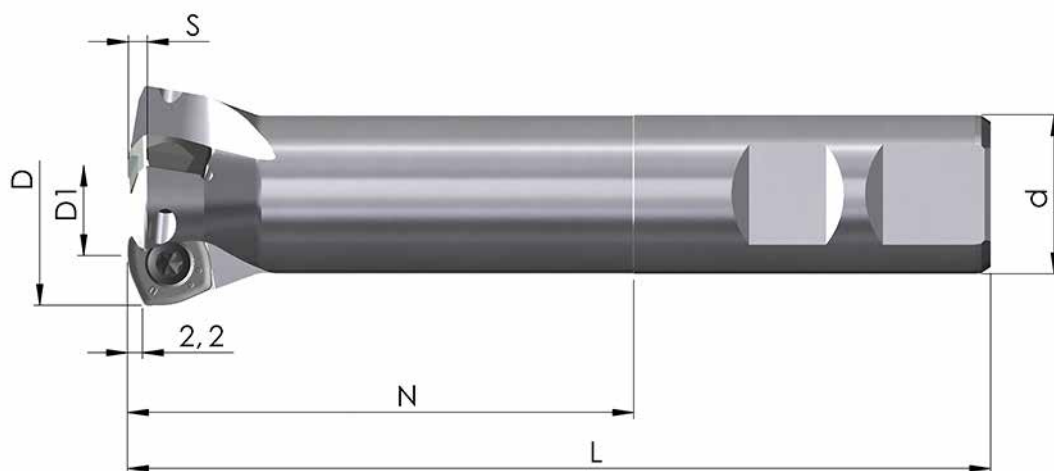
Order-Nr.	D	D ₁	H	d H ⁶	B	S	Z	MS
00PP-040-12-3	40	24,6	40	16	38	2,25	3	MS-8x30-912
00PP-042-12-3	42	26,6	40	16	38	2,25	3	MS-8x30-912
00PP-050-12-4	50	34,6	40	22	46	2,25	4	MS-10x25-912
00PP-052-12-4	52	36,6	40	22	46	2,25	4	MS-10x25-912
00PP-063-12-5	63	47,6	50	27	58	2,25	5	MS-12x35-912
00PP-066-12-5	66	50,6	50	27	58	2,25	5	MS-12x35-912
00PP-080-12-5	80	64,6	50	32	78	2,25	5	MS16x35-6912
00PP-100-12-6	100	84,6	50	40	90	2,25	6	MS20x45-7991
Close pitch:								
00PP-040-12-4	40	24,6	40	16	38	2,25	4	MS-8x30-912
00PP-042-12-4	42	26,6	40	16	38	2,25	4	MS-8x30-912
00PP-050-12-5	50	34,6	40	22	46	2,25	5	MS-10x25-912
00PP-052-12-5	52	36,6	40	22	46	2,25	5	MS-10x25-912
00PP-063-12-6	63	47,6	50	27	58	2,25	6	MS-12x35-912
00PP-066-12-6	66	50,6	50	27	58	2,25	6	MS-12x35-912
00PP-080-12-7	80	64,6	50	32	78	2,25	7	MS16x35-6912
00PP-100-12-8	100	84,6	50	40	90	2,25	8	MS20x45-7991

MS= Central screw

TYPE A18 - TECHNICAL DATA

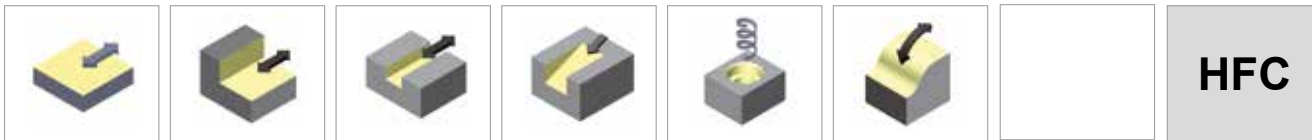


SHANK TYPE MILL DIN 1835-B (WELDON)



Order-Nr.	D	D ₁	N	d _{h6}	L	S	Z
00PP-32-12-2-80	32	16,6	80	25	136	2,25	2
00PP-32-12-2-125	32	16,6	125	25	181	2,25	2
00PP-35-12-3-80	35	19,6	80	25	136	2,25	3
00PP-35-12-3-125	35	19,6	125	25	181	2,25	3

TYPE A18 - TECHNICAL DATA

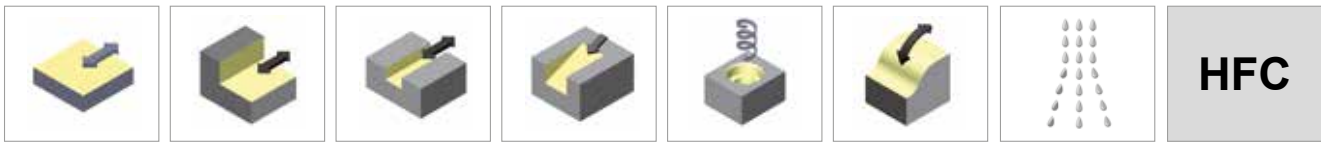


SHANK TYPE MILL DIN 1835-A

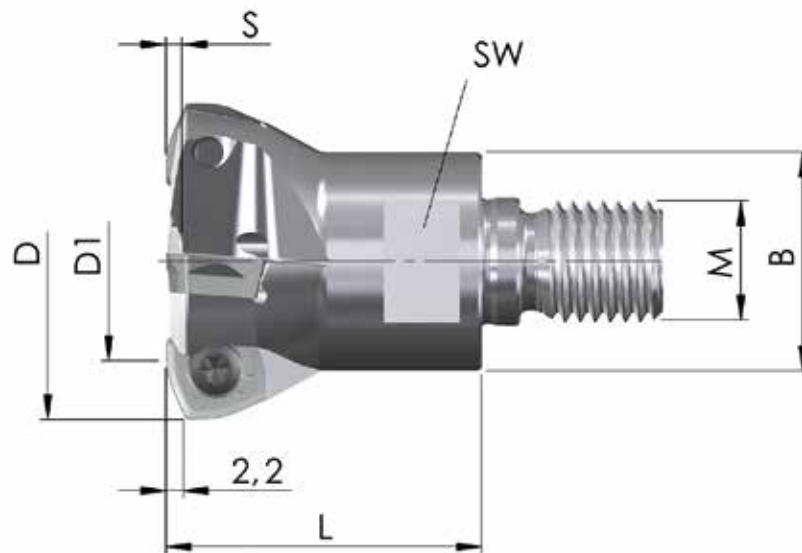


Order-Nr.	D	D ₁	N	d _{h6}	L	S	Z
00PP-32-25-12-2-195	32	16,6	40	25	195	2,25	2
00PP-35-25-12-3-195	35	19,6	40	25	195	2,25	3

TYPE A18 - TECHNICAL DATA






















SCREW-IN CUTTERS



Order-Nr.	D	D ₁	L	M	B	SW	S	Z
ESF-32-M16-12-2	32	16,6	42	M16	29	24	2,25	2
ESF-35-M16-12-2	35	19,6	42	M16	29	24	2,25	2
ESF-42-M16-12-3	42	26,6	42	M16	29	24	2,25	3
Close pitch:								
ESF-35-M16-12-3	35	19,6	42	M16	29	24	2,25	3
ESF-42-M16-12-4	42	26,6	42	M16	29	24	2,25	4

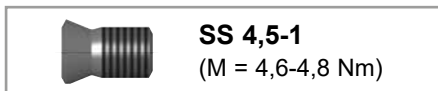
INSERTS

		HC45 (code 41)	HC42 (code 57)	HT45 (code 31)	HT32 (code 33)	HC30 (code 52)	XC35 (code 46)	HT20 (code 32)
	JMA18-12MR10- IK 12,7x5,0 R1,0							
								
Order-No.		A18A-LJ41	A18A-KT57			A18A-JG52		A18A-MK32
f_z [mm]		1,20 (0,80-1,50)	1,20 (0,80-1,50)			1,20 (0,80-1,50)		1,20 (0,80-1,50)
	JMA18-12HR10- IK 12,7x5,0 R1,0			A18A-GE31	A18A-FW33		A18A-HF46	A18A-EC32
								
								
Order-No.								
f_z [mm]				0,90 (0,60-1,50)	0,90 (0,60-1,50)		0,90 (0,60-1,50)	0,90 (0,60-1,50)
	JMA18-12SR10- IK 12,7x5,0 R1,0			A18A-PN31	A18A-NL33			A18A-OM32
								
								
Order-No.								
f_z [mm]				0,80 (0,50-1,50)	0,80 (0,50-1,50)			0,80 (0,50-1,50)

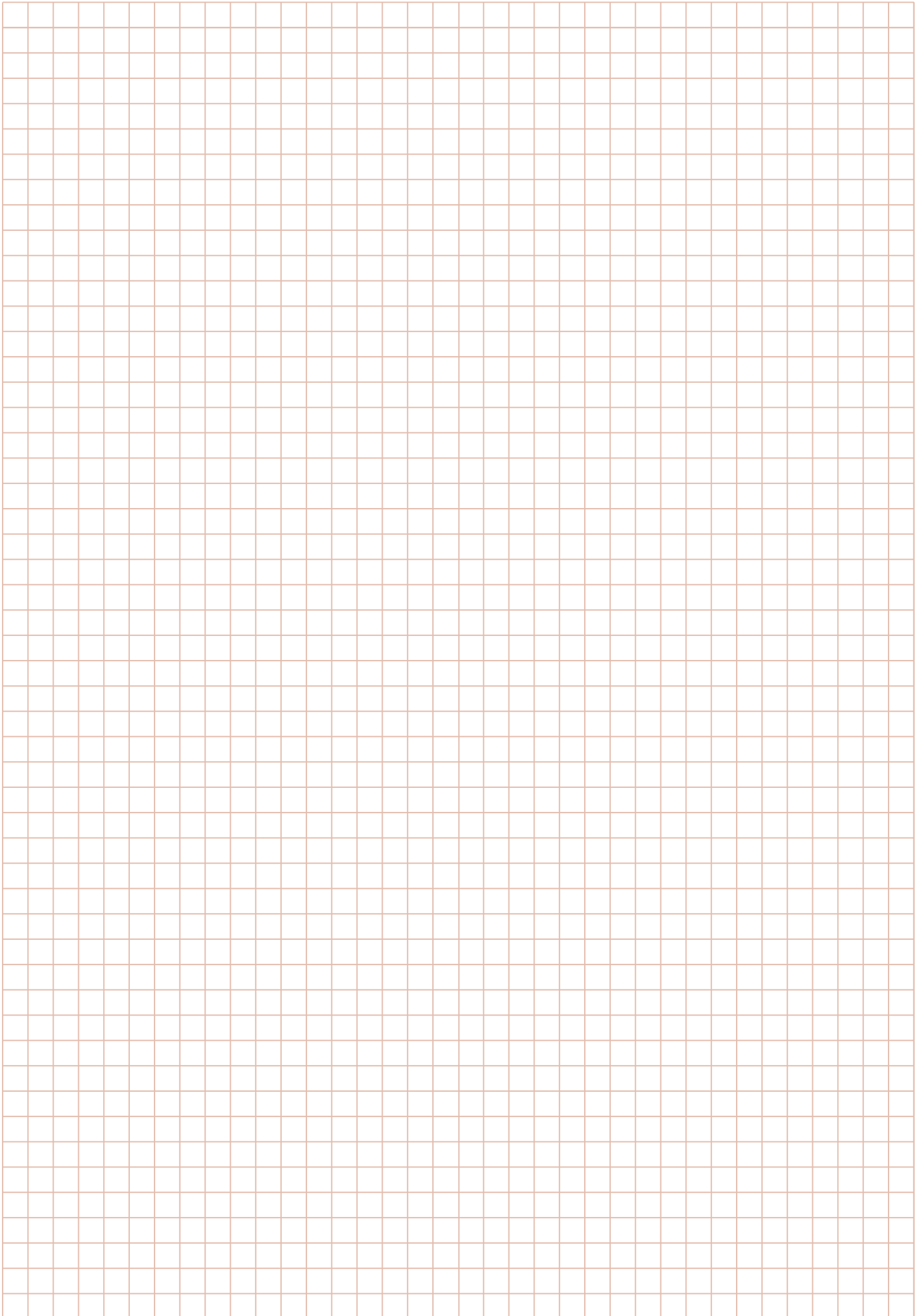
Key to symbols see catalogue page XV-39

V_c [m/min]	steel	stainless	cast iron	non-ferrous metals	highly heat-resistant	tempered
HC45	250 (200 - 350)	240 (140 - 300)	240 (130 - 280)			
HT45	250 (200 - 350)	240 (140 - 300)	240 (130 - 280)			
HT32	250 (200 - 350)	240 (140 - 300)			60 (40 - 200)	
HC30	160 (120 - 220)	200 (100 - 300)			60 (40 - 200)	
XC35	120 (60 - 160)	100 (60 - 180)			80 (60 - 120)	
HT20			260 (180 - 350)			80 (40 - 120)

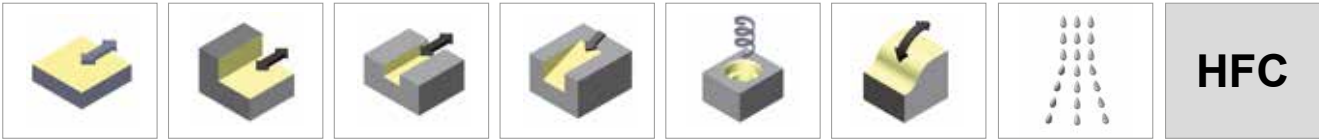
SPARE PARTS



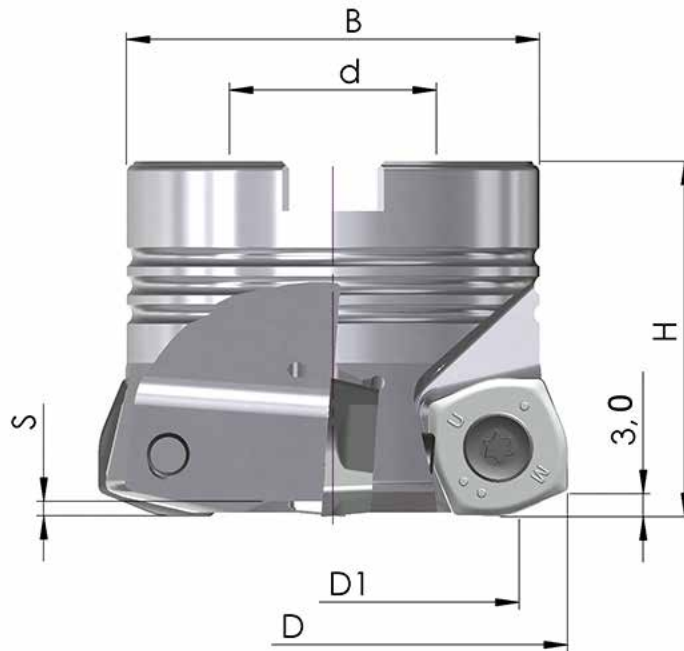
NOTES



TYPE A19 - TECHNICAL DATA



SHELL TYPE MILL



Order-Nr.	D	D ₁	H	d H ⁶	B	S	Z	MS
00PP-063-19-3	63	42,0	50	27	58	2,25	3	MS-12x35-912
00PP-066-19-3	66	45,0	50	27	58	2,25	3	MS-12x35-912
00PP-080-19-5	80	59,0	50	32	78	2,25	5	MS16x30-6912
00PP-100-19-6	100	79,0	50	40	90	2,25	6	MS20x45-7991
00PP-125-19-7	125	104,0	50	40	90	2,25	7	MS20x45-7991
Close pitch:								
00PP-063-19-4	63	42,0	50	27	58	2,25	4	MS-12x35-912
00PP-066-19-4	66	45,0	50	27	58	2,25	4	MS-12x35-912
00PP-080-19-6	80	59,0	50	32	78	2,25	6	MS16x30-6912
00PP-100-19-7	100	79,0	50	40	90	2,25	7	MS20x45-7991
00PP-125-19-8	125	104,0	50	40	90	2,25	8	MS20x45-7991

MS= Central screw

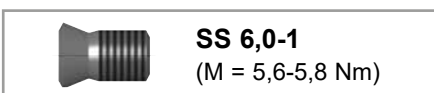
INSERTS

			HT45 (code 31)	HT32 (code 33)	HT20 (code 32)				
	JMA19-19HR12- IK 19,1x6,7 R1,2 	Order-No.	A19A-PD31	A19A-OC33	A19A-NB32				
		f_z [mm]	1,50 (0,90-2,00)	1,50 (0,90-2,00)	1,50 (0,90-2,00)				
	JMA19-19SR12- IK 19,1x6,7 R1,2 	Order-No.	A19A-TG31	A19A-RE33	A19A-XF32				
		f_z [mm]	1,20 (0,80-1,50)	1,20 (0,80-1,50)	1,20 (0,80-1,50)				

Key to symbols see catalogue page XV-39

V_c [m/min]	steel	stainless	cast iron	non-ferrous metals	highly heat-resistant	tempered
HT45	250 (200 - 350)	240 (140 - 300)	240 (130 - 280)			
HT32	250 (200 - 350)	240 (140 - 300)			60 (40 - 200)	
HT20			260 (180 - 350)			80 (40 - 120)

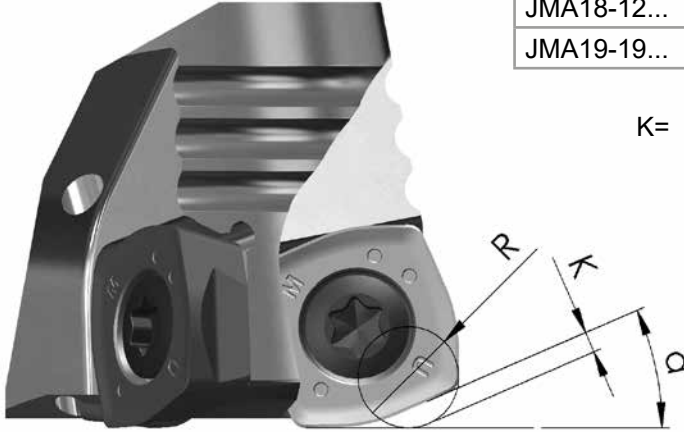
SPARE PARTS



INDICATIONS OF APPLICATION:

With the application of the PowerMill we recommend the programming in correspondence with a tool with radius.

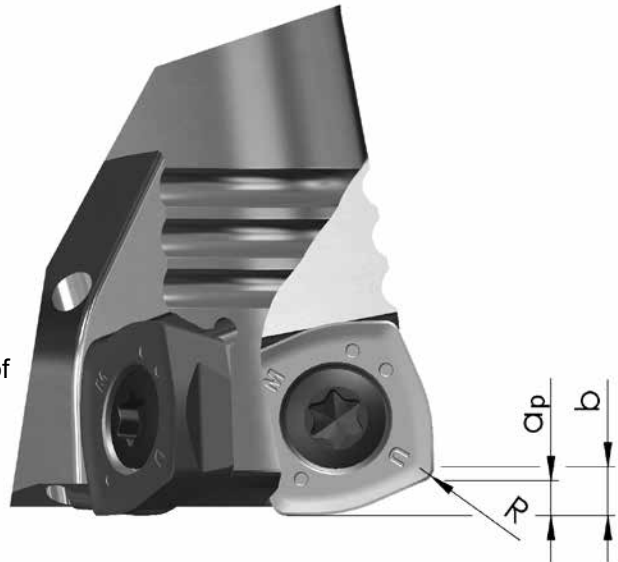
Insert	R	K	α
JMA17-09...	1,9	0,8	15,7°
JMA18-12...	3,3	1,4	23,5°
JMA19-19...	4,3	1,9	22,1°



K= free milling area

If the depth of cut is higher than measure "ap", the feed rate per tooth has to be reduced by 30%. Max. depth of cut see measure "b".

Insert	a_p	b	R
JMA17-09...	1,1	1,9	0,8
JMA18-12...	2,3	3,3	1,0
JMA19-19...	3,2	4,3	1,2



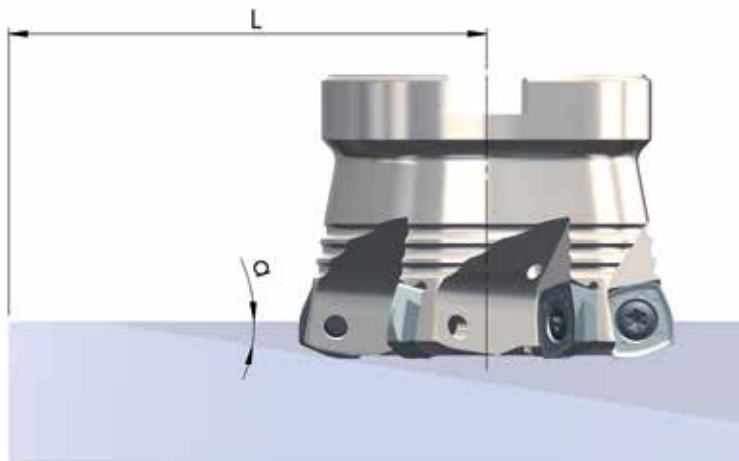
HELIX MILLING WITHOUT PRE-DRILLING:



Insert	D	ø D1 min.	ø D1 max.	a _p / turn	IK-ø Insert
JMA17-09MR08 JMA17-09HR08 JMA17-09SR08	20	21	40	1,0	9,60
	25	31	50	1,0	9,60
	32	45	64	1,0	9,60
	35	51	70	1,0	9,60
	40	61	80	1,0	9,60
	42	65	84	1,0	9,60
	50	81	100	1,0	9,60
	52	85	104	1,0	9,60
	63	107	126	1,0	9,60
66	113	132	1,0	9,60	
JMA18-12MR10 JMA18-12HR10 JMA18-12SR10	32	39	64	2,2	12,70
	35	45	70	2,2	12,70
	40	55	80	2,2	12,70
	42	59	84	2,2	12,70
	50	75	100	2,2	12,70
	52	79	104	2,2	12,70
	63	101	126	2,2	12,70
	66	107	132	2,2	12,70
	80	135	160	2,2	12,70
	100	175	200	2,2	12,70
JMA19-19HR12 JMA19-19SR12	63	88	126	3,0	19,10
	66	94	132	3,0	19,10
	80	122	160	3,0	19,10
	100	162	200	3,0	19,10
	125	212	250	3,0	19,10

With the helix milling 50% of the normal feed rate per tooth is recommended.
The depth of immersion per turning should not exceed the measure „a_p“ from picture „depth of cut“.

SLOT MILLING BY RAMPING:



Insert	D	Ramping angle max. α (°)	Processing path min. L (mm)	ap max.	Inscribed circle- \varnothing (IK) Insert
JMA17-09MR08 JMA17-09HR08 JMA17-09SR08	20	6,0	10	1,10	9,60
	25	4,1	15	1,10	9,60
	32	2,8	22	1,10	9,60
	35	2,5	25	1,10	9,60
	40	2,1	30	1,10	9,60
	42	1,9	32	1,10	9,60
	50	1,6	40	1,10	9,60
	52	1,5	42	1,10	9,60
	63	1,2	53	1,10	9,60
66	1,1	56	1,10	9,60	
JMA18-12MR10 JMA18-12HR10 JMA18-12SR10	32	6,5	19	2,20	12,70
	35	5,6	22	2,20	12,70
	40	4,6	27	2,20	12,70
	42	4,3	29	2,20	12,70
	50	3,4	37	2,20	12,70
	52	3,2	39	2,20	12,70
	63	2,5	50	2,20	12,70
	66	2,4	53	2,20	12,70
	80	1,9	67	2,20	12,70
100	1,4	87	2,20	12,70	
JMA19-19HR12 JMA19-19SR12	63	3,9	44	3,00	19,10
	66	3,7	47	3,00	19,10
	80	2,8	61	3,00	19,10
	100	2,1	81	3,00	19,10
	125	1,6	106	3,00	19,10

Errors and omissions excepted!